

# Public Safety

## Introduction

Public services are required to support a community’s basic needs for fire protection, law enforcement, and emergency response and management. By adopting plans and ordinances and by allocating resources appropriately, the County can promote an effective level of services to satisfy these needs. Collaborative efforts with other agencies, organizations, and community groups also contribute to the safety of residents and visitors.

This Element addresses ways to minimize potential hazards associated with wildfires, floods, earthquakes, and steep slopes. It also presents goals and policies related to safety-related public services—fire protection, emergency management and disaster response (on both the local and regional levels), and law enforcement. The goals and policies presented in this Element are designed to ensure that we plan for adequate services and facilities, either during the land development process or through appropriate government programs.

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## The Conservation Framework Relationship

The goals and policies in this Public Safety Element are only marginally related to the **CONSERVATION FRAMEWORK** because most services do not directly impact the **CONSERVATION** of natural resources. Exceptions include the goals and policies related to minimizing hazards associated with the **WILDLAND/URBAN INTERFACE**, floods, and steep slopes.

The *Ecological Processes* principle can help us understand how wildfires occur in Coconino County’s forests. Likewise, **CONSERVATION GUIDELINE K**, which addresses cumulative impacts to the environment over time, is important in managing hazards associated with steep slopes, floods, and wildfires.

## Our Purpose & Vision

We envision our communities as safe places to live, work, and play. County residents not only want to reduce the threat of catastrophic wildfire in the wildland/urban interface, but we also want to promote high levels of fire protection and public safety in all areas. The *Coconino County Comprehensive Plan* addresses public safety concerns with policies that help us avoid or mitigate the dangers posed by **NATURAL HAZARDS** and prepare us for disasters with effective emergency service and quick, appropriate response. These policies also focus on ensuring that our neighborhoods remain safe.



## Wildland/Urban Interface

### WILDLAND/URBAN INTERFACE

The area in and around a community where the immediate or secondary effects of a wildfire would threaten a community's environmental, social, and economic values, causing serious detriment to the area's overall health and viability.

### FIREBRANDS

Burning airborne embers that are generated by a wildfire and transmitted by wind beyond the fire front. Firebrands often ignite spot fires.

The **WILDLAND/URBAN INTERFACE** is a concern in Coconino County because of the potential for wildland fuels to ignite combustible structures and vice-versa. Destroying homes, property, and trees is just one way that wildfire harms an area. Wildfires can destroy **HABITAT**, soils, and forest health, disrupting economic stability, transportation corridors, recreation opportunities, water supplies, and scenery, as well as undermining a community's emotional and spiritual well-being.

In Coconino County, the threat of wildfire is serious because of our vast expanses of wildland and unnatural forest conditions. Instead of open stands of large, widely spaced trees, forests are now overcrowded with unnaturally dense thickets of smaller trees. These stands are more susceptible to catastrophic “crown fires,” which move rapidly from the ground into tree crowns and then spread from crown to crown. These high-intensity fires are more ecologically destructive than the low-intensity fires in healthy, natural forests. Fire officials recognize that the question is not whether catastrophic wildfires will occur—but when.

Reducing the threat of catastrophic wildfire is a priority in the wildland/urban interface. The geographic extent of this interface should be increased to include areas beyond the forest boundary. As proven during the 2002 Rodeo-Chediski wildfire, thousands of acres can burn in one day, and wind can transport **FIREBRANDS** and ignite spot fires up to 1.5 miles ahead. Additionally, because so many variables affect fire behavior, no set distance from homes or communities would apply in all situations. Therefore, the potential threat of wildfire should be assessed when considering development in urban interface areas. Since this interface spans several jurisdictions and authorities, interagency cooperation is essential. The U.S. Forest Service, National Park Service, and Arizona State

Land Department have undertaken various projects and management actions to help restore natural conditions and prevent catastrophic wildfires. In addition to forest-treatment projects involving thinning and **PRESCRIBED BURNING**, these agencies also typically address recreation and road management to reduce wildfire potential in wildland/urban interface areas. However, agencies can only manage lands under their jurisdictions. To maximize the effectiveness of such actions, corresponding treatments are also necessary on adjacent private lands.

The County not only requires that new developers formulate plans for forest stewardship and fuels **MITIGATION**, but it has also adopted safeguards for carrying these plans into the future. These safeguards include attaching requirements, conditions of approval, and recorded covenants to **DEVELOPMENT PROJECTS** to help ensure that properties are maintained in accord with the stewardship plans. Other possible actions include adopting advisory or mandatory codes designed to produce more fire-resistant buildings and adopting architectural and site development standards designed to produce more “defensible” and “survivable” structures in urban interface areas.

Creating **DEFENSIBLE SPACE** and **SURVIVABLE SPACE** helps protect structures from fire. Defensible space practices include increasing

the moisture content of vegetation, decreasing the amount of flammable vegetation, shortening plant height, and arranging plants to provide adequate spacing. Such practices can significantly increase the likelihood of a home surviving a wildfire; however, the term “defensible” implies that someone will be there to defend it. In reality, if a major wildfire occurs, there will never be enough fire engines to defend every home in the



community. The concept of survivable space goes one step further. It refers to property design practices that increase the likelihood of structures surviving a wildfire without active intervention by fire protection services.

The National Fire Protection Association, in conjunction with other agencies and organizations, has developed the Firewise Communities Program to promote development practices that decrease the effects of catastrophic wildland fires. The Firewise approach considers the terrain, vegetation, building materials, and architectural design of a site. Its goal is to reduce continuous fuel sources and the chance of structural ignition.

**Goal:** Reduce the threat of catastrophic wildfire in the wildland/urban interface.

#### Policies:

1. Major developments and subdivisions in the wildland/urban interface must provide a forest stewardship/fuels mitigation plan and property maintenance covenants incorporating the principles of defensible and survivable space. *SEE CONSERVATION GUIDELINES: B, C*
2. For development in the wildland/urban interface, the use of Firewise landscaping and construction design and materials is encouraged. *SEE CONSERVATION GUIDELINES: B, C*
3. When considering development projects in or near the wildland/urban interface, the County encourages property owners and developers to consult with forest managers and land management agencies in developing fire mitigation plans to ensure compatibility.



## Floods, Earthquakes, & Slopes

In addition to wildfires, other **NATURAL HAZARDS** of concern in Coconino County include floods, earthquakes, and landslides.

Because the ground is **IMPERMEABLE** in many areas, floods can occur in response to excessive rainfall and snowmelt. The *Coconino County Zoning Ordinance* addresses floods in the **FLOODPLAIN MANAGEMENT OVERLAY ZONE**. However, although this overlay zone includes provisions for flood-hazard reduction, it does not prohibit or prevent development in flood-prone areas. It only requires that new construction does not encroach on the “floodway”—the main channel required for the discharge of a **100-YEAR FLOOD**. The **FLOODPLAIN** management regulations help ensure that property owners can obtain insurance under the National Flood Insurance Program and that the County can obtain disaster relief from the **FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)**.

Coconino County is at moderate risk for earthquakes, according to the **ARIZONA EARTHQUAKE INFORMATION CENTER** at Northern Arizona University. Numerous geologic **FAULT SYSTEMS** comprise the **NORTHERN ARIZONA SEISMIC BELT**, including the Cataract Creek, Mesa Butte, and Bright Angel systems. The Cataract Creek system underlies the Flagstaff region and includes the Lake Mary fault. Damaging earthquakes occurred in 1906, 1910, and 1912; minor quakes occur every year, on average. The chance of an earthquake of magnitude 6 or higher is estimated to be about 50 percent in the next 30 years. The worst-case scenario for the Flagstaff community would be an earthquake of magnitude 7 or higher on the Cataract Creek fault system.<sup>34</sup> Other areas of the county would experience less potential damage because they are less developed. For construction purposes, Coconino County is classified under the **UNIFORM BUILDING CODE (UBC)**<sup>35</sup> as being in Seismic Zone 2b. The earthquake provisions of the code are intended to protect against

SEE ALSO PAGE 24

Natural Environment:  
Environmentally Sensitive Lands

#### NATURAL HAZARDS

A significant threat to life and property produced by natural conditions or processes such as hurricanes, tornadoes, faults, severe soil erosion, slumping, wildfire, or floods.

#### 100-YEAR FLOOD

A flood that has a 1 percent chance of being equaled or exceeded in any given year.





## SEE ALSO

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Community Character: Scenic  
Vistas & Viewsheds

major structural failures and loss of life. Although new construction codes produce buildings that can resist the effects of ground motion, older structures are at risk.

Constructing buildings on steep slopes is potentially hazardous for several reasons—fires can spread upslope easily, landslides and slumping can occur because of poor soil conditions, and steep, narrow driveways can limit accessibility, particularly for emergency response. Nevertheless, properties on ridgelines and mountainsides often bring a premium because they offer scenic views. Guidance providing development criteria for steep slopes is limited. Although the *Coconino County Subdivision Ordinance* requires lots to have a buildable area that does not exceed 25 percent slope, it does not prevent construction on steeper portions of a lot. Property owners can build on hillsides under code simply by engineering structural foundations for steep slope conditions.

**Goal:** Avoid or mitigate the dangers posed by identifiable or predictable natural hazards.

**Policies:**

4. Development proposed in geologically hazardous areas or on steep slopes should be done in a manner that poses little or no hazard to health or property. *SEE CONSERVATION GUIDELINES: B, C*
5. Development projects including critical facilities, high density residential, and major commercial and industrial uses shall not be approved in areas subject to high levels of seismic risk and only very low-risk land uses will be considered for approval in such areas.
6. Utility providers are encouraged to strengthen, relocate, or take other appropriate measures to safeguard pipelines, transmission lines, and other utility infrastructure in areas subject to elevated natural hazard risk.

## Fire Protection

Although fire protection is available in cities within Coconino County, it is not universally available in rural unincorporated areas, especially in remote outlying areas. Property

owners in such areas may assume responsibility for fire protection on an individual basis if they are not located within a fire district; alternatively, they can join together with other property owners and petition the **BOARD OF SUPERVISORS** to create a fire district. Such districts are funded by a secondary tax assessed on properties within district boundaries; those who create a district essentially agree to tax themselves to provide fire protection.

To some extent, our zoning and subdivision ordinances and our building codes also address fire protection. For example, the *Zoning Ordinance* requires minimum building setbacks, separation between structures, and maximum lot coverage limitations, which help prevent the spread of fire between structures and facilitate emergency **ACCESS**. The *Subdivision Ordinance* requires varying levels of fire protection depending on the type of **SUBDIVISION** and density of **DEVELOPMENT**. Road design standards help ensure emergency access to properties. County building codes address minimum requirements for smoke detectors, **EMERGENCY EGRESS** from structures, and fire separation between buildings or units with different occupancy types.



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Various agencies in the county manage fire protection on their respective lands. Federal agencies with fire management responsibilities include the Forest Service, the Bureau of Land Management, and the Park Service. The State Land Department has responsibility on state trust lands; in addition, it often cooperates with federal agencies and local fire districts to respond to fires on private and public lands. The State Land Department provides technical assistance to private property owners who are developing and implementing plans for fire protection and fuels **MITIGATION**. Many local fire districts also assist property owners in reducing fuels and implementing other proactive fire-prevention strategies, especially in the **WILDLAND/URBAN INTERFACE** areas.

SEE ALSO

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Wildland/Urban Interface

**Goal:** Provide for a high level of fire protection and safety.

**Policies:**

7. Development projects shall include adequate fire protection measures, as determined by the Board of Supervisors with input from the local fire district and/or appropriate fire management agencies.
8. The County encourages and supports property owners in forming fire districts, annexation into existing districts, or otherwise organizing formal fire protection organizations pursuant to state law.
9. Property owners are encouraged to utilize Firewise construction and landscape design elements, to maintain defensible space, and to seek technical assistance from their local fire district or the State Land Department for fuels mitigation and fire prevention measures. *SEE CONSERVATION GUIDELINES: B, C*

## Disaster Response & Management

Large-scale emergencies and disasters require a coordinated, interagency response. Because major emergencies and disasters can quickly exceed our local capabilities, the County has developed emergency management plans that detail procedures to follow in case of a major flood, fire, hazardous material spill, winter storm, gas pipeline failure, mass casualty, energy or water shortage, earthquake, or mass evacuation. If an incident occurs, the Emergency Services Coordinator helps notify the appropriate emergency response agencies, assists in evacuation activities, and later assists in disaster recovery and mitigation. The Coordinator can also provide valuable input for new developments in identifying hazards and possible mitigation strategies.

Interstate transportation corridors also create a potential for major public safety incidents. As an example, the Burlington Northern Santa Fe Railroad runs about 100 freight trains across the county every day, often carrying hazardous cargo. A derailment could result in a **HAZMAT** incident requiring a coordinated interagency response. When such an incident or other disaster occurs, the Emergency Services Coordinator helps facilitate response and recovery operations.



**Goal:** Maintain a high level of emergency preparedness.

**Policies:**

10. Commercial and industrial development projects shall identify all potentially hazardous or toxic materials expected to be utilized, stored, or produced by the development, and detailed plans shall be submitted regarding the use, storage, transportation, and disposal of such materials prior to considering approval of the project. *SEE CONSERVATION GUIDELINE: I*
11. Development projects shall acknowledge existing conditions and/or hazards which may pose a threat to residents—such as proximity to physical hazards—and should mitigate such threats through appropriate site planning, buffering, and other physical design approaches.

## Local Emergency Response

Accidents, medical calls, or other incidents are typically handled by local emergency response agencies. Emergency medical services are generally available in unincorporated areas through air and ground ambulance units. In addition, most local fire districts—often the first responders to all types of incidents—provide some level of medical response. Given the geographic extent of the county, emergency response times can vary widely; in the most remote areas, they can be delayed. Residents must accept a certain amount of responsibility for personal safety through emergency medical training in first aid, cardio-pulmonary resuscitation (CPR), and **WILDERNESS FIRST RESPONDER** methods. This training can save lives when professionals are hours away.



Effective emergency response depends largely on how fast responders can locate the situation. Enhanced 911 Service, now recognized as a necessity for public safety, displays the caller's address, along with a map, on the dispatcher's computer screen. It is only effective if streets are named and marked in a way that responders can understand easily. Efforts to standardize street names and addresses countywide began in early 2002.

Ideally, major developments should incorporate at least two points of ingress and egress for adequate emergency **ACCESS**. Where this is not feasible, other mitigation measures may be appropriate. Developers should also consider the availability of local emergency services.

**Goal:** Ensure emergency services and response to meet residents' needs.

**Policies:**

12. The County places a high priority on the rapid and effective identification of properties by public safety personnel and emergency response agencies.
13. The availability of adequate emergency services and emergency access routes shall be considered in the review of major developments and subdivisions.
14. An emergency response mitigation plan shall be incorporated in development projects located in remote areas without nearby emergency medical services.

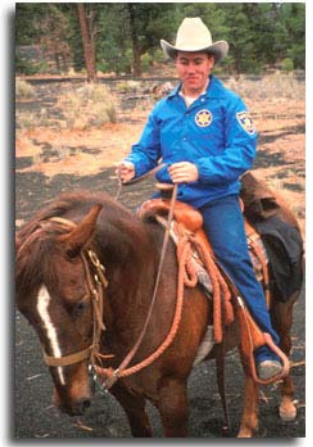




15. The County encourages emergency medical services and response agencies to locate facilities in communities so as to be accessible to and compatible with surrounding neighborhoods.

## Law Enforcement

Coconino County's large geographic extent and widely separated communities create challenges for law enforcement, particularly in unincorporated areas. The Sheriff's Office is the lead law enforcement agency in such areas. Its services include community patrol, traffic enforcement, accident investigation, criminal investigation, civil process, County jail operation, and search and rescue. The Sheriff uses **COMMUNITY-BASED POLICING** to encourage deputies to work actively with the community to identify and solve problems. One aspect of community-based policing is assigning deputies to outlying unincorporated areas. Volunteers supplement the staff of full-time officers, increasing the physical presence of the Sheriff's Office. However, because there will likely never be enough officers to respond immediately to every situation in every corner of the county, residents of remote, outlying areas must accept a certain amount of responsibility for their safety and security. To ensure a reliable provision of services, it is necessary for the Sheriff's Office to work closely with other local, state, and federal law enforcement agencies throughout Coconino County. Effective cooperation and coordination is especially critical in maintaining safe, crime-free rural and wildland areas where tens of thousands of tourists, campers, and hunters congregate throughout the year.



Certain community design approaches can prevent crime by addressing conditions that create public safety concerns. **CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN (CPTED)** involves designing or modifying the physical environment in a way that reduces opportunities for crime and for the fear of crime. Not only can CPTED be cost-effective, but it can also foster a greater sense of community.

As the county's population increases, demands for law enforcement services increase. The most common issues are related to traffic, juveniles, domestic violence, unsafe firearm use, and improper **OFF-HIGHWAY VEHICLE** use. Crime-prevention programs can help relieve the pressure on law enforcement; they include community outreach and education, block-watch, and community-based youth programs. Providing adequate law enforcement services to meet the demands and expectations of an increasing population requires an ongoing assessment of needs and a corresponding commitment of resources.

**Goal:**      **Ensure safe, crime-free neighborhoods and communities.**

### Policies:

16. The County places a high priority on providing high quality professional law enforcement services.
17. Incorporating the concepts and principles of CPTED or similar concepts is encouraged for development projects.
18. In the design of development projects, developers are encouraged to consult with the County Sheriff's Office to identify and address potential public safety issues.
19. Residents and homeowner associations are encouraged to accept a certain amount of responsibility for their personal safety and security and to participate as active partners in neighborhood crime prevention programs in cooperation with the County Sheriff's Office.
20. The County encourages and supports the establishment of organized youth activities, including employment training and community service programs as a crime-prevention strategy.



**WALT DISNEY**

*"All our dreams can come true—if we have the courage to pursue them."*

